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DE19854760

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The invention relates to a method for manufacturing a removable surface protection, in particular an assembly protection on a painted motor vehicle body after the preamble of Claim 1.

Automobiles are provided after their production with a surface protection, which is to protect the paint of the automobile up to the delivery with the customer from aggressive environmental influences.

Usually for this wax conserving come to the application, which make however the use of a solvent required. An alternative for this is pasting the automobile with a removable protective film, which is to be applied expensive by hand however beside its relatively high material costs, so that the total costs of the surface protection are significant. Such a surface protection becomes in particular provided as weathering protection.

More other a method is known for manufacturing a removable transportation protection on a painted motor vehicle body, in particular on the horizontal surfaces of the body (DE 196 52 728 A1) by applying a liquid on the painted body and solidification of the liquid bottom formation of a strippable protective film. Applying the liquid here a spraying procedure becomes proposed without closer indications. As up-sprayable liquid to the formation of a so-called. Liquid foil becomes an aqueous dispersion proposed, in particular in the type of a polymer dispersion.

A film applied by a spraying procedure on a painted vehicle body can prevent also as protective film injuries of the painted surface by scratches during the finished assembly as assembly protection. For a overspray free, edge acuity application of the liquid foil is it known, to protective ranges not-binding of the application abzukleben or templates to use. These measures are expensive and cost-intensively.

Besides a method is known for applying a protective film on a painted vehicle body (DE 197 41 606 A1), laid with which an aqueous dispersion becomes from a spaltförmigen nozzle in form of a liquid film on the body. The film runs here by the gravity from the nozzle gap, whereby a body becomes through-moved under it. By the type of the job as liquid curtain, which may not tear off during the job, the achievable foil layers are relative thick, which leads to a detrimental high materials consumption. A spraying order by applying a spraying pressure is not present here. Measures for an edge-accurate application are not mentioned.



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Object of the invention is it to train a gattungsgemäßes method further in such a way for manufacturing a removable surface protection on a painted motor vehicle body that with the application no Overspray impairment is not made and corresponding additional measures required.

This object becomes 1 dissolved with the features of the claim.

According to claim 1 the made spraying procedure to the application of the liquid foil in two method steps, by a flat application by means of at least a first flat application nozzle for larger

surfaces overspray free into the edge range of a application-flat made and an edge acuity edge range application by means of at least a second edge range application nozzle for small areas made. As flat application nozzle for larger surfaces a fan nozzle with a fan-wide of 70 to 80 mm and a pressurization of approx. becomes. 40 bar of used. As edge range application nozzle for small areas a fan nozzle with a fan-wide of 30 to 40 mm and a pressurization of approx. becomes. 6 bar of used.

With the fact favourably achieved become that edge-sharp without additional measures, on the intended application-flat the liquid foil is applizierbar overspray and, in particular without masking with tape with tape or use of templates. Thus this method substantial becomes simpler manageable and more inexpensive as the prior methods. Besides good application results with uniform, relative thin layer thickness become achieved with such an concrete nozzle assembly and corresponding operating pressures. Preferably the nozzles without air admixture become, D. h. "airless" operated.

Thereby according to claim 2 becomes particularly favourable as the first method step the flat application performed and subsequent in a second method step the edge range application performed. Thus in particular an uniform layer thickness without uneven transitions becomes the subsequent area achieved also within the edge range. The edge range application of the liquid foil becomes preferably performed, if the liquid foil applied with the preceding flat application is not yet solidified.

As liquid for the liquid foil according to claim 3 is suitable in actual known manner an aqueous dispersion, in particular a polymer dispersion. Suitable resultant layer-strong lie thereby for instance between 50 to 200 μ M. Thus on the one hand a good protective function ensured is and on the other hand can such a film arrearsless without other use from cleaning aids be taken off. Besides caused such a film no lacquer changes and/or. Lacquer damages.

The method is good for an automation and a robot employment suitable. According to claim 4 becomes thereby the spray nozzles on a controlled movable robot head mounted. For the spraying procedure according to claim 5 becomes at least a robot beside one body-promote-strains, preferably several robots both sides body-promote-strains disposed. The body which can be sprayed then continuous or clock-controlled over body-promote-strain the robots moved by.

According to claim 6 is suitable applying places for the protective film the vehicle roof, upward pointing areas of the front car and the rear of the vehicle as well as one horizontal side strip range each in height of the Fensterbrüstung. The application of the liquid foil made according to claim 7 convenient more immediate before the final assembly.

On the basis a drawing the invention becomes more near explained.

Show:

Fig. 1 a schematic plan view on a spraying device for applying a liquid foil on a body,

Fig. 2 a schematic tail opinion on the spraying device after Fig. 1, and

Fig. 3, a painted body in a tail and, provided with a liquid foil, a front view.

In Fig. 1 is a spraying device 1 shown with one body-promotes stretches 2 and two series of four robots each 3, which body-promote-strains to both sides 2 disposed is.

Is more other in Fig. 1 on the conveying path 2 an already painted body 4 between the robots 3 shown, which are to the right more movable the corresponding arrow 5. In the schematic tail opinion of the spraying device 1 and in particular body-promote-strain 2 and the body the 4 after Fig. 2 is more near concretized the robots 3. In each case 6 flat application nozzles for larger surfaces are as first fan nozzles 7 and edge range application nozzles for small areas than second fan nozzles 8 for an edge acuity, overspray free edge range application mounted on a robot head. Additional one can an other, if necessary. cover-laterally stationary mounted nozzle head 13 fan nozzles 7, 8 above a roof range of a body 4 for a there application of the liquid foil mounted its.

With the spraying device 1 a method is feasible for manufacturing a removable surface protection in form of a liquid foil on the painted vehicle body 4. In addition a two-stage spraying method becomes used: in a first method step a made oversprayfreie flat application with the help of the first fan nozzles 7 with an operating pressure of approx. 40 bar, in a second method step becomes then subsequent within the edge ranges an edge acuity, overspray free application by means of the second fan nozzles 8 with an operating pressure of approx. 6 bar of performed, whereby both method steps become "airless" performed.

During the spraying procedure an aqueous dispersion, in particular a polymer dispersion sprayed, becomes which solidifies itself with layer-strong from 50 to 200 μm to a strippable protective film. An uniform spraying procedure becomes 6 ensured by a controlled movement of the robot heads. The application of the liquid foil on the painted vehicle bodies 4 made immediate before the final assembly of the vehicle, whereby the applied liquid foil serves, in particular as protective film for the prevention of lacquer damage with the final assembly.

With Fig. 3 is the hatched body surfaces indicated, becomes 1 applied on which a liquid foil with the spraying device. These surfaces are the vehicle roof 9, upward pointing areas of the front car 10 and the rear of the vehicle of 11 as well as in each case horizontal side strip ranges 12 in height of the Fensterbrüstung.